

Joseph Merz, Ph.D., Principal Scientist/Restoration Ecologist



Dr. Merz has worked on Central Valley salmonid issues for the past 17 years. Joe has a Bachelor of Science in Environmental and Systematic Biology from Cal Poly San Luis Obispo, a Master of Science in Conservation Biology from California State University Sacramento, and a Ph.D. in Conservation Ecology from The University of California at Davis. Merz has worked for California public utility, university, and state entities on resource monitoring, management and salmonid habitat enhancement. Joe designed the gravel enhancement and fish community database for a major California utility district, and has significant experience analyzing data including fish community surveys, benthic macro-invertebrate

data, fish diet analysis, habitat monitoring, and fish migration monitoring. He is noted as an environmental studies and natural resources lecturer, and teaches salmonid biology and habitat restoration courses. Joe has developed and lead fish community monitoring and salmonid migration surveys in the Central Valley since 1993. Merz has applied modeling techniques to numerous salmon resource issues including spawning gravel budgets, embryo survival and development, and optimum feeding temperatures for juvenile salmonids. He has coauthored a variety of peer-reviewed publications, focusing on river rehabilitation, fish movement, feeding behavior, invasive species, woody debris/redd associations, and evaluation of spawning habitat enhancement, among others. He has a strong background in multivariate statistics, generalized linear models, multiple linear regression, and non-parametric statistics.

Personally, he has been honored with multiple awards and scholarships recognizing his performance, and has initiated numerous interagency and multidisciplinary research and restoration grants totaling over a million dollars for restoration projects in California. He is noted for presentations on human and habitat interactions to professional and lay organizations. He is a member of American Fisheries Society and the Southwestern Association of Naturalists. Fluent in English and German, he is presently learning Spanish as well.

Education and Training

Ph.D. Conservation Ecology. University of California, Davis. 2004.

M.S. Biological Conservation. California State University Sacramento. 1994.

B.S. Environmental and Systematic Biology. Cal Poly San Luis Obispo, CA. 1991.

Employment History

Principal Scientist, Cramer Fish Sciences. 2007–present.

Fisheries Biologist II, East Bay Municipal Utility District. 1996–2007.

Lecturer, Environmental Studies, California State University, Sacramento. 2001–present.

Lecturer, Natural Resources, University of California, Davis Extension. 2000–present.

Aquatic Ecologist, ENTRIX INC. 1993–1996.

Contract Biologist, California Department of Fish and Game. 1991–1994.

Firefighter/Engineer California Department of Forestry and Fire Protection. 1989–1991.

Selected Research and Restoration Grants

- AFRP/CDFG/CDPR. Mokelumne River Salmon Spawning Habitat Restoration (\$850,000)
- CUWA. Mokelumne River Angler Survey/UC Davis co-funded; O. mykiss acoustic monitoring (\$130,000)
- NFWF. Murphy Creek (CA) Fish Passage Improvement-Co-funded with Sparrowk Livestock and Murphy Creek Homeowner's Association (\$100,000)
- USFWS. Assessing the Impacts of New Zealand Mudsnails (*Potamopyrgus antipodarum*) on Fish Habitat in the Mokelumne River, CA (\$25,000)

Selected Publications and Reports

- Merz, J. J. Smith, M. Workman, J. Setka, and B. Mulchaey. In press. Aquatic macrophyte encroachment in Chinook salmon spawning beds—Lessons learned from gravel enhancement monitoring in the lower Mokelumne River, California. *North American Journal of Fisheries Management*.
- Elkins, E.M., G.B. Pasternack, and J.E. Merz. 2007. Use of slope creation for rehabilitating incised, regulated, gravel bed rivers. *Water Resources Research*.
- Jeffres, C.A., A.P. Klimley, J.E. Merz and J.J. Cech Jr. 2006. Movement of Sacramento sucker, *Catostomus occidentalis*, and hitch, *Lavinia exilicauda*, during a spring release of water from Camanche Dam in the Mokelumne River, California. *Environmental Biology of Fishes* 75:365-373.
- Merz, J.E., and P. B. Moyle. 2006. Salmon, wildlife, and wine: Marine-derived nutrients in human dominated ecosystems of Central California. *Ecological Applications* 16(3):999-1009.
- Merz, J.E., J.R. Smith, and M.L. Workman, Submitted. Invasive aquatic macrophyte assessment within a salmon spawning reach of a regulated California stream. *North American Journal of Fisheries Management*.
- Merz, J.E., and L.K. Chan. 2005. Effects of gravel augmentation on macro-invertebrate assemblages in a regulated California river. *River Research and Applications* 21:61-74.
- Merz, J.E., and W.R. Merz. 2004. Morphological features used to identify Chinook salmon sex during fish passage. *Southwestern Naturalist* 49(2): 1-12.
- Merz, J.E., G.B. Pasternack and J.M. Wheaton. 2006. Sediment budget for salmonid spawning habitat rehabilitation in a regulated river. *Geomorphology* 76:207-228.
- Merz, J.E., and J. D. Setka. 2004. Evaluation of a spawning habitat enhancement site for Chinook salmon in a regulated California river. *North American Journal of Fisheries Management* 24:397-407.
- Merz, J.E., J. D. Setka, G.B. Pasternack and J.M. Wheaton. 2004. Predicting benefits of spawning habitat rehabilitation to salmonid (*Oncorhynchus* spp.) fry production in a regulated California river. *Canadian Journal of Fisheries and Aquatic Sciences*. 24:397-407.
- Workman, M.L. and J.E. Merz. 2007. Introduced Yellowfin Goby, *Acanthogobius flavimanus*: diet and habitat use in the lower Mokelumne River, California. *San Francisco Estuary and Watershed Science*. Vol. 5, Issue 1, Article 1.